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ABSTRACT

Ninety children were administered the Peabody Picture Vocabulary Test (PPVT) with the standardized administration, as well as an elicited word response task of the PPVT Stimulus Plates. The subjects were inner city black (BIC), inner city white (WIC), and middle class white (WMC) children. The data were analyzed to determine consistency of item errors in standard administration, consistency of naming, and correlations between item errors and naming response. Intra-, inter-, and total group analyses were run. Up through the age of six, the three groups were the same; differentiation emerged after that age, with BIC achieving lowest scores on the PPVT, and WMC achieving highest scores. No significant consistency in item errors was found, though a trend towards difference was seen in the BIC population. No significant difference among groups was found in naming, or in correlation between item error and naming response. The BIC population as well as WMC and WIC had appropriate words and/or concepts for the plates which had been missed on standard PPVT administration, suggesting a lexical/experiential as opposed to a semantic/phonemic difference. (Author/RD)

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A COMPARISON OF THIRD GRADE SUBURBAN AND INNER CITY CHILDREN'S PERFORMANCE ON THE STANDARD ADMINISTRATION OF THE PEABODY PICTURE VOCABULARY TEST AND THE NAMING OF THE PEABODY PICTURE VOCABULARY TEST PLATES

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ABSTRACT

Ninety children, ages 8-6 to 9-5 served as subjects for a study utilizing the Peabody Picture Vocabulary Test (PPVT) with (1) the standardized administration, and (2) an Elicited Word Response task of the PPVT Stimulus Plates. The subjects consisted of 60 children from the Inner City - 30 Black children (BIC), 30 White children (WIC), and 30 White children from the suburbs "middle class" (WMC).

The major questions being asked: (1) Is the PPVT still a valid measurement tool for each of these populations? (2) Are any of these 3 groups different from each other? (3) Do any children in these groups score lower on the PPVT because of semantic and/or phonemic difference? (Note: The area of major concern lay with the BIC population.)

The data was analyzed to determine consistency of item errors in standard administration, consistency of naming, and correlations between item errors and naming response. Intra-, inter-, and total group analyses were run. Up through an age equivalent of 6-1, the three groups were the same; differentiation emerged after that equivalent, with BIC achieving lowest scores on the PPVT, and WMC achieving highest scores. No significant consistency in item errors was found, though a trend towards difference was seen in the BIC population. No significant difference among groups was found in naming, or in correlation between item error and naming response. The BIC population as well as WMC and WIC had appropriate words and/or concepts for the Plates which had been missed on standard PPVT administration, suggesting a lexical

(experiential) as opposed to a semantic/phonemic difference.

During the 1950's and 60's increased attention was brought to the poly-cultural aspects of American society. The issue of culturally-biased testing was scrutinized. Educators were becoming attuned to the fact that using White Middle Class as a standard for evaluation of performance might not always be valid for all people. Studies comparing test results of lower socio-economic, non-White and White populations to those of White Middle Class were numerous. These pointed out significant differences in test performance between different socio-economic and racial groups (Howard et al, 1970; Oakland et al, 1971; Coopley, 1964; Ward, 1965). This, naturally, raised the question of the etiology of these differences.

The verbal behavior from different cultural and socio-economic envrionments was investigated and the question of culturally-biased language evaluative measures was raised. (John, 1963; Ball, et al, 1967; Houston, 1970). The works of Bernstein, 1962; DeBoer, 1952: and Cazden, 1966, pointed out social class differences of language usage. Emphasis was placed on language use, vocabulary and the social factors employed in the differences of the social classes.

Increasing numbers of studies focusing on language used by Blacks, and the concept of linguistic differences have been undertaken. Dillard, 1972, did extensive linguistic analysis in his book, Black English, revealing differences in grammar and syntax. Differences in vernaculary, i.e. common word usage, as well as experience/environment, were noted.

Yoder, 1971, stated that "The bulk of evidence about language differences has involved research with Negro children. How do we know the same differences do not apply for White children?" From this one might postualte

that the low socio-economic class child (White or Black) may be experience-deprived. If this is a valid assumption, might it not also follow that his vocabulary would also be deficient, as that vocabulary is a reflection of his linguistic experience?

Professionals who are concerned with language development, i.e. expressive and receptive language skills, often use vocabulary-based measurements to assess performance. The issue of language differences among different socio-economic and ethnic groups has again raised the issue of using culturally-biased verbal test items as performance measures since the majority of these tests were standardized on White Middle Class populations.

The Peabody Picture Vocabulary Test is a diagnostic tool widely used by school systems, psychologists, and speech pathologists. The Peabody Picture Vocabulary Test (PPVT) was developed to estimate verbal intelligence by measuring the ability to comprehend single spoken-word vocabulary. It was standardized in 1958 on a White population in Nashville, Tennessee. "Each of the items was placed at the age level where 40-60 per cent of the appropriate age group passed it." (Dunn, 1965) A stimulus word is pronounced by the examiner and the subject responds by pointing to the appropriate corresponding line drawing (a subject chooses one of the four plates presented on the page). A mental-age equivalent as well as an intelligence quotient may be derived from the scores obtained. The test has been found to correlate closely with results of other tests such as the WISC, the Stanford Binet, etc. and is stated by the author as being a "useful prediction of school success especially in the areas which call more heavily on verbal intelligence."

In the past few years, many articles have been written calling into question specifically the continued use of the Peabody Picture Vocabulary Test as a valid measure of a culturally-different child's verbal intelligence. Though Dunn (1965) states that, "Words were omitted which seemed biased culturally, regionally and socially as were dated words...," the question has been raised as to the presence of culturally-biased test items despite the author's attempt to avoid them.

The order of difficulty of items might also be different from the Black community as contrasted to the White population which might significantly affect mean raw scores. Semantic and/or phonemic differences between and among subject groups and examiners might also be confounding factors.

Moss and Edmons, 1960 stated that "...the order of difficulty of items was felt to be different from British as contrasted with American children," although "the mean raw score was highly similar."

One such investigation was conducted by Milgram (1970) who examined PPVT scores of culturally different preschool children. Two groups of children were tested; ages 4½-6 years and 3-4 years; the Stanford-Binet (Form LM) and the Peabody Picture Vocabulary Test (Form A) were administered. They found the mean MA for the PPVT and SB were significantly below average and the PPVT was significantly lower than SB in both groups (t test: $P<.01$). The data further suggested a cumulative decrement of PPVT score as the child got older with the five year old child demonstrating a differential of 12 months.

To test the hypothesis that children from middle socio-economic classes (MESC) would score higher than children from lower socio-economic status

(LSEC), a comparison of verbal intelligence of young children from LSE and MSE was made by Berg and Berg, 1971. That hypothesis was not supported, but that data did indicate that Black children scored significantly lower on PPVT in both LSEC and MSEC. The mean MA for Black children was 12 months below the mean MA for the White children tested.

Clinical observation of a significant number of Black children within the Boston Model Cities Neighborhood Center tested revealed below chronological age level performance with the PPVT. Those who scored below CA were typically about 2 years behind in their language development, as operationally defined by the PPVT. This was in the absence of any overt mental deficiency of a corresponding degree or reduction in everyday functioning or school performance. The following questions were then raised:

1. Is there significant difference in test performance on the PPVT between Black Inner-City children and White Inner-City children and/or White Middle Class children?
2. Are there test items on the PPVT which could be operationally defined as culturally-biased?
3. Are there significant semantic and/or phonemic differences in the Black Inner-City community which differ from the stimulus test words; if so, are these differences affecting test performance?

With these questions in mind, this study proposed to test the following hypotheses:

H_0 The null hypothesis - "There is no difference between the Inner-City Black children and White children in the general population, with regard to responses to the stimulus words and plates utilized in the PPVT as measured by naming plates and pointing to stimulus plates on the PPVT."

H_1 There is a significant difference between Inner-City Black children and White children in the general population in regard to understanding PPVT stimulus words and plates as measured by naming plates and pointing to stimulus plates on the PPVT.

From this the following correlary questions were asked:

1. Is there any significant difference in test items named by Black Inner-City (BIC), White Middle Class (WMC), or White Inner-City (WIC) children?
2. Is there any significant item error consistency among Black Inner-City, White Middle Class and White Inner-City children in test items on the PPVT?
3. Is there any significant phonemic and/or phonological difference found in the vocabulary words elicited from BIC, WIC, and WMC?

PROCEDURES

A pilot study was initially undertaken with a total of 30 Black Inner-City children. Ten subjects were selected from each of three groups of pre-kindergarten, first grade and third grade. Though no valid statistical analysis was attempted with this small number, inspection of the data indicated a trend towards poor performances in the higher grade. Therefore, the decision was made to study the third grade, ages 8-6 through 9-5 for the purposes of this investigation.

The effect of White examiners on Black children's test performance was investigated. The literature surveyed was non-conclusive. Cursory examination suggested no differences in the test results obtained by Black or White examiners in the pilot study; therefore, both Black and White examiners administrated the testing for this study.

Subject Selection

Ninety children from the Boston and Greater Boston area were seen for testing. These were divided into sub-groups of 30 children from each of the following groups. Black Inner-City (BIC), White Inner-City (WIC), and White Middle Class (WMC). BIC children were obtained from parochial and public school settings; WIC and WMC children were obtained from the public school setting.

Criteria for Selection

The subjects were all in the third grade and judged by their teachers as performing at grade level. They were randomly selected as to sex. They ranged in age from 8-6 to 9-5 years. They were all born of native American, English-speaking parents. The subjects accepted for the study had no known visual, auditory or organic deficit and no diagnosed learning disability or speech and language problem.

Materials

A. Adapted Series of Plates (PPVT) - Number 1 through 88
   Elicited word response sheets for plates 1 through 88
   (PPVT - Form A)

B. PPVT Series of Plates
   PPVT Test Form A

C. Computer

Testing Procedure

Each child in each sub-group was seen individually with the child seated directly across from the examiner. Testing took place in two stages, with Stage I one week before Stage II.

Stage I

Elicited Word Response. To insure consistency in eliciting the naming response, each examiner gave the following instructions:

> "We are going to play a game. I am going to show you a picture and ask you about it. You give me the answer. Let's try one."

Stimulus pictures from Form A including examples A, B, and C and Plates 1 through 88 were shown to each child. The PPVT Series of Plates Booklet was used, but with only the Form A item response plate exposed on each page.

For each plate, specific stimulus word groups were presented to facilitate the naming response of the same grammatical class as in the standardized test response. (e.g. "What is she doing? She is _____. This is a _____.")

If no response was elicited or if the response elicited was out of context with regards to the stimulus, the stimulus word group was again presented. If no response was elicited after two presentations, the examiner proceeded to the next plate.

Non-judgmental, positive reinforcement was offered to encourage response. (e.g. "You're doing a fine job.")

Responses were recorded on the form exactly as given; no corrections were made for dialectical differences. When stimuli were presented twice for an item, both responses were recorded in the order given.

Stage II

The PPVT using individual Test Record Form A, was administered with no assumed basal; each subject was started at Plate 1 and proceeded to ceiling, as established in the manual. Raw score and mental age were determined per standardized procedure.

Recording the Data for Computer Analysis

1. The Elicited Word Response

   Since a single word naming response was desired and necessary for computer tabulation the following format was established in transcribing the raw data.

   a. Single word responses were recorded as given.

   b. If word groups were given as naming response, only the in-class word of the group was recorded, e.g. "Plate 74 - arctic: Alaska in the cold weather."

   c. If a two word response with a one word connotation was given, both words were recorded with a hyphen, i.e. Plate 74 - arctic: North-Pole

   d. If word groups were given evidencing the concept but with no in-class word which could be extracted to indicate this, the item was recorded with a "C" - (concept) e.g. Plate 74 - arctic: "Up where the Eskimos live."

   e. If word groups were given, with no in-class word which could be extracted and without evidencing a concept of the stimulus item presented, the item was recorded with an "INAP" - (inappropriate) e.g. Plate 74 - arctic: "A funny box."

   f. If no response was forthcoming after 2 presentations, the item was recorded as NR - (no response).

   g. Responses were transcribed to note any difference in pronunciation i.e. phoneme additions, substitutions, omissions.

   If a stimulus was presented twice with two resulting responses, the following format was established for transcribing the raw data.

a. If the second response was the same as stimulus words of the standardized PPVT, it was recorded.

b. In all other cases, only the first response was recorded, using the previously listed criteria and format.

2. The Standardized PPVT

The number of each plate chosen (whether correct or incorrect) was recorded. A zero was used to indicate either "no response" or that the item was not presented since the ceiling had been reached.

STATISTICAL DESIGN OF THE STUDY

In order to test H_0 - H_1 a number of analyses were done. A parametric analysis of variance of PPVT MA scores tested in the data in order to find if the samples drawn were from the same or different populations. A Kruskal-Wallis non-parametric analysis was done on the same data to ascertain whether rankings would indicate data trends when the numbers were "ignore" and the parametric assumptions of F were avoided.

A t-test was done between WMC and BIC in order to see if PPVT mean MA scores would indicate that samples were drawn from different populations.

In order to test H_0 - H_1 it was determined that item agreement was probable through an age equivalent 2.5 years below CA, or 6.1 years. Thus analysis began at item 56 and data was analyzed for responses 56 through 88.

A Friedman 2-way analysis of variance was performed for these items in order to retest H_0 for "best response across sample means for item."

Because it was possible to obtain standard I.Q. data for WMC a Spearman rho was run on PPVT MA and California Mental Maturity Scale in order to see how well PPVT MA approximates full scale I.Q. and in order to

compare this result with Dunn's data (Dunn, 1965). The I.Q. data were not available for WIC and BIC.

Spearman rho's were also computed for CA versus MA - PPVT for the total group and for each sample sub-groups. This did not reflect on $H_0 - H_1$ but dealt with the general question, "Is there a general relationship between age and PPVT MA score, irrespective of any other consideration?

RESULTS AND DISCUSSION

Table I summarizes the results of statistical analysis. F (-0.18759) on the PPVT MA scores indicates that the subjects were not drawn from different populations. A t-test for BIC and WMC (the most extreme mean differences - 102.6 and 120.3 respectively) was not significant, and did not statistically establish that subjects were drawn from different populations. However, the Kruskal-Wallis one-way analysis of variance did indicate that similarly aged subjects did perform differently in each of the groups when scores were ranked and parametric assumptions not considered. This indicates that while the actual scores are probably indicative of accomplishment in "receptive vocabulary," the WIC and BIC were "different" when scores were placed "competitively" next to WMC responses.

This impression is further reinforced when analysis of specific items was attempted. Analysis began at Item 56. Items 1-55 elicited scores in excess of 90% in each group. The total of all items missed by individuals through #55 was 47 (there were 4950 items possible) for a cumulative of .0096% incorrect across all groups.

The rho's for CA and PPVT MA demonstrate no relationship between PPVT MA

and CA in unselected subject samples or in specific sub-samples. It appears that age, in the absence of other study variables, is of no consequence in predicting PPVT MA per se.

The criteria for the generation of the original Peabody Picture Vocabulary Test allowed for inclusions of items identified correctly by more than 40% of the population. The criteria for selecting those items for inspectional analysis was similarly determined as those items for which a minimum group response of 40% was demonstrated (Dunn, 1965). Although the frequency analysis showed no significant difference between the 3 groups analyzed, Group BIC showed the largest percentage (66% of subjects) whose MA was less than their CA. (A Chi square analysis failed to reject H_0 with an associated P of .30). Group WMC showed the smallest percentage of subjects. (See Table II)

Group BIC generally stopped responding at Item 79 and, therefore, a Friedman two-way analysis of variance was run on Items 56 through 88. The P was greater than .001, indicating that the correct response was consistently given across groups: WMC (first), WIC (second) and BIC (third); and that for these items, each group was functioning as a different population. The significance here is that the Peabody Picture Vocabulary Test was standardized on a White Middle Class population, and though the test proves reliable for that population, such does not appear to be the case for WIC and BIC.

The rho comparing PPVT MA and the California Mental Maturity I.Q. for WMC was .411, with an associated P greater than .05. Here the relationship is rather weak but generally consistent with Dunn's results and indicates that the PPVT has general validity in estimating intelligence scores for

White Middle Class populations. What PPVT seems to measure of the Inner-City child is a "lack of advantage" in that Inner-City children (White, and more so Black children) will tend to score below chronological age level and probably below their potential.

The data in Table III and Table IV indicates that the Groups BIC and WIC have the concept of the stimulus word in that both groups for Items 56 through 88 generally named the stimulus plate with either the stimulus word or an in-class word. This would tend to support the idea of an experiential deficit, i.e. the lack of exposure to the specific word, rather than an absence of the concept.

In examining the lexicon elicited from BIC, WIC and WMC, no phonological or phonemic differences were noted, in pronunciation, i.e. phoneme additions, omissions or substitutions. Some differences were noted in lexicon. On Items 56 through 88, 40 per cent of the group WMC named 3 out of 33 stimulus plates the same as the stimulus words. Twenty-three in-class or same word responses were elicited. Forty per cent of both groups BIC and WIC named 17 out of 33 or 73.9 per cent of the stimulus words with in-class or same as words. Although some differences were noted in lexicon between the three groups, no semantic differences were demonstrated. These analyses do support the indication from various sources that the "Inner-City experience" (first for Black then for Whites) tends to be detrimental to the acquisition of certain knowledge, i.e. vocabulary, that is typically required by the schools.

One question raised in the study was, "If a group named the stimulus picture with a different word from the PPVT word, did the group also

incorrectly respond on the standard administration of the PPVT?" Table V. presents the number of responses made by 40 per cent of each group for each plate, Item 56 through 88.

Group WMC Responses

For group WMC an incorrect response was given 50 per cent of the time and a correct response given 40 per cent of the time for Item 68. Forty per cent of the group WMC responded correctly to 28 out of 33 items examined. Responses for Items 83, 84 and 85 did not meet the "40 per cent of the group" criteria.

Group WIC Responses

Forty per cent of group WIC responded incorrectly to Item 68. For Items 74, 79, 81 82 and 83 the 40 per cent criteria was not met. Forty per cent or more of the group did not respond to Items 85 through 88.

Group BIC Responses

Group BIC did not respond for Items 80 through 88. Forty per cent of the group correctly responded to 18 out of the 33 items examined. Forty per cent or more incorrect responses were given for Items 59 and 66. Items 60, 74 and 79 failed to reach the 40 per cent criteria.

This inspection indicates although there were some items missed in the standard administration of the PPVT for which a different word was given in the naming task, no specific items could be identified as culturally biased for any of the three groups, based on the items incorrectly identified in the standard administration of the PPVT.

A natural question arising from item analysis of the data of the type

found in this study, is, "In cases of incorrect identification, is there a response bias among the sub-groups when responses are deemed incorrect?" Inspection of Table V reveals no bias was demonstrated. Forty per cent of the group WMC responded to one item incorrectly. For groups WIC and BIC two items were incorrectly identified by forty per cent or more of the group. (See Table VI)

SUMMARY

Ninety children, thirty each from Black Inner-City (BIC), White Inner-City (WIC) and White Middle Class (WMC) school populations within the Greater Boston area, were selected as subjects for a study utilizing the Peabody Picture Vocabulary Test (Form A), and Elicited Word (naming) Responses with an Adapted Series of PPVT Plates.

The study sought to discern whether Black children were a "different" population with regard to the standardized PPVT, and if so, whether the difference was attributable to phonemic and/or semantic usage.

The analysis of data indicates that the null hypothesis of this study cannot be rejected. There is no statistically significant difference between Black children and those of the general population with regard to the stimulus words and plates utilized in the PPVT. A trend towards difference was seen, but significance was not established. The Black Inner-City children (BIC) tended to score lower in general than the White Inner-City children (WIC), who in turn tended to score lower than the White Middle Class children (WMC). However, in examining the response errors on items beginning from Plate 57, the BIC group appeared to be a different population at a level of significance greater than .001. Through that level (Plates 1 through 56) they did not appear as a "different" population, and there was no difference among the three groups. The PPVT assumes a basal of 50 (Plate #) for ages 7-9 to 9-5 years. Our responses support the assumed basal for all groups tested.

The alternate hypothesis - that there is a difference between Black children and children in the general population with regard to phonemic

and/or semantic usage and that because of this difference, the Black children do not understand the stimulus words and plates utilized in the PPVT, was not supported.

Regarding the Correlary Questions

There was no significant item-error consistency on test items both within or between groups, nor was there any significant difference in the naming responses within or between groups. If a difference does exist, it appears to be lexical, i.e. vocabulary, as opposed to phonemic and/or semantic, i.e. conceptual. Most of the BIC group gave evidence of in-class or concept naming ability suggesting that their incorrect receptive responses are probably related to experience which does not give access to some of the PPVT vocabulary. (See Table IV)

What the PPVT seems to measure of the Inner City child is a lack of advantage in that Inner City children (White and more so with Black children) will tend to score below their chronological age level and below their potential as indicated by in-class naming responses. Additional research possibilities suggested as a result of this investigation are:

1. Organization of the PPVT Plates and Stimulus Words according to their descending frequency of occurrence, using Oral Word Lists, e.g. Howes (1966), as criteria.
2. Organization of PPVT Plates and Stimulus Words in order of descending frequency of occurrence using "written" word lists such as The Teacher's Wordbook of 30,000 Words, Thorndike-Lorge (1943), or other updated word list studies.
3. Repetition of this study adapted to other tests of receptive vocabulary (e.g. Ammons).
4. Repetition of this study with Black Middle Class subjects.

TABLE I

Summary of Statistical Procedures

Analysis of Variance (One Way)

	BIC	WIC	WMC	
n =	30	30	30	N = 90
Tj =	3078	3369	3609	T = 10056
$\bar{X}$ =	102.6	111.3	120.3	T^2/N = 1,123,591
ΣX^2 =	9591.06	12943.88	13007.82	$\Sigma\Sigma$ = 35542/72
T^2/nj =		378338.7	434162.7	$\Sigma T^2j/nj$ = 1128303.4

* = PPVT - MA equivalent

Sum of Squares

Between.....4712.4
Within...1092760.8
Total....1088048.4

Analysis	Sum of Squares	Degrees of Freedom	Estimated Variance
Between	4712.4	2	2356.2
Within	-1092760.7	87	-12560.467
Total	-1088148.3	89	F = -0.18759 (N.S.)

t - BIC/WMC = .6118 (N.S.)

Kruskal-Wallis: One Way Non-parametric = 6.3062 $p > .05$

Friedman: Two Way Analysis of varience re: percent response items 56-78

$\chi^2_r = 195.86$ $p > .001$

Spearman: Rank Order Co-Efficient of Correlation - rho - for WMC PPVT - MA and California Mental Maturity Scale

$r_s = .411$ $p > .05$

rho's for CA versus MA (PPVT)

	N WMC 30	N WIC 30	N BIC 30
Total Group (N = 90) - .1047	-.0363	.1337	-.2001

All Non-Significant

TABLE II

MA/CA Performance on PPVT by Group

		WMC		WIC		BIC	
CA	MA	6/30	20%	12/30	40%	20/30	66.6%
CA	or = to MA	24/30	80%	18/30	60%	10/30	33.3%

TABLE III

Naming Response Same as Stimulus Words for Items 56 - 88

Item Number	Item Name	WMC Group	WIC Group	BIC Group	Total
57	Counter	70% 21/30	70% 21/30	*	58% 53/90
62	Funnel	56% 17/30	*	*	
67	Stadium	40% 12/30	*	*	

*Indicates word elicited from group different from stimulus word at least 40% of the time.

TABLE IV

Naming Response Within Class of Stimulus Word

Item Number	Item Name	Group WMC		Group WIC		Group BIC		Total	
58	ceremony	60% wedding	18/30	66% wedding	20/30	56% wedding	17/30	61% wedding	55/90
59	pad	40% peas	12/30						
60	bronco	100% horse	50/30	100% horse	30/30	100% horse	30/30	100% horse	90/90
61	directing	43% stopping	13/30			56% stopping	17/30	45% stopping	41/90
63	delight	40% happy	12/30	40% happy	12/30				
65	communication	46% talking	14/30	46% calling	14/30	63% talking	19/30	51% talking	46/90
68	excavate	53% dig	16/30	46% dig	14/30				
69	asaulting	93% fighting	28/30	93% fighting	28/30	100% fighting	30/30	95% fighting	86/90
70	stunt			46% act	14/30	46% show	14/30		
71	meringue	43% pie	13/30			50% crust	15/30		
72	appliance	93% iron	28/30	96% iron	29/30	100% iron	30/30	96% iron	87/90
73	chemist	46% scientist	14/30	46% scientist	14/30	63% doctor	19/30		
74	arctic	43% North Pole	13/30			60% North Pole	18/30	43% North Pole	34/90
78	noisting	53% pulling	16/30	58% pulling	15/30	58% pulling	15/30	51% pulling	46/90
79	wailing	100% crying	30/30	100% crying	30/30	100% crying	30/30	100% crying	90/90
80	coil	80% spring	24/30	90% spring	27/30	73% spring	22/30	81% spring	73/90
81	kayak	46% canoe	14/30	50% canoe	15/30	46% canoe	14/30	47% canoe	43/90
82	sentry	80% soldier	24/30	83% soldier	25/30	73% soldier	22/30	78% soldier	71/90
84	beam	43% ceiling	13/30	43% ceiling	13/30			40% ceiling	36/90
85	fragment	53% piece	16/30	53% piece	16/30	43% piece	13/30	50% piece	45/90
86	novering	86% flying	26/30	88% flying	24/30	83% flying	25/30	83% flying	75/90
	Total	20		17		17		15	

TABLE V

Number of Responses Occurring 40% or More for Items 56 - 88
Elicited with Standard Administration of PPVT

Item #	WMC Group	#/30	%	WIC Group	#/30	%	BIC Group	#/30	%
56	1	19	63.6	1	22	7.3	1	15	50
57	1	29	96.6	1	30	100	1	27	90
58	2	27	90	2	25	83	2	28	93
59	3	22	73.3	3	14	46			
				*4	12	40	*4	12	40
60	4	18	60	4	15	50			
61	3	29	96.6	3	27	90	3	28	93
62	4	26	86	4	24	80	4	20	66
63	2	29	96	2	26	86	2	24	80
64	3	23	76	3	25	83	3	21	70
65	2	26	86.6	2	24	80	2	19	63
66	4	16	53.3	4	15	50	*2	15	50
67	1	24	80	1	22	73	1	20	66
68	*2	15	50	*2	12	40			
	1	12	40				1	19	63
69	4	23	76	4	12	40	4	19	63
70	1	25	83	1	25	83.3	1	16	53
71	1	18	60	1	15	50	1	14	46
72	3	16	53	3	17	56	3	12	40
73	4	23	76	4	21	70	4	17	56
74	3	22	73						
75	4	22	73	4	19	63	4	13	43
76	3	15	50	3	17	56	3	13	43
77	2	21	70	2	14	46			
78	4	24	80	4	18	60	4	15	50
79	1	12	40						
80	2	20	66	2	13	43	0	12	40
81	3	22	73				0	12	40
82							0	19	63
83							0	19	63
84				1	14	46	0	19	63
85				0	13	43	0	20	66
86	4	12	40	0	15	50	0	20	66
87	3	15	50	0	18	60	0	20	66
88	4	18	60	0	18	30	0	23	76
	Total Correct 28			Total Correct 22			Total Correct 18		
	Incorrect 1			Incorrect 2			Incorrect 2		
				NR 4			NR 9		

*Indicates incorrect response.

TABLE VI

Incorrect Item Response of 40% or More
Elicited with Standard Administration of PPVT

Item	Number Incorrectly Given 40% or More by Group		
	WMC	WIC	BIC
59	X	4	4
65	X	X	2
68	2	X	X

X = No incorrect item response of 40% or more.

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